Just then, Paul's pocket communicator beeped, and a voice message informed him that traffic conditions were heavier than usual, so he ought to leave in five minutes. Getting in his car; Paul noted that the heads-up display on the windshield (a projection sufficiently faint that it did not obscure his view) showed the route and a blinking dot for his location. Signals from the global positioning satellites fixed his location within a few feet, as they would throughout his trip. He backed out, depending on the single-chip radar in his taillights to alert him to any obstacle, and drove down the street, ignoring the highlighted routing information to the freeway which he knew very well. Movement was swift on the freeway, with tolls charged automatically by roadway sensors.

After a while, Paul found himself in an unfamiliar area. He had been driving for about an hour and was curious as to just how far he still had to go. "Arrival time," he said. The display showed "Expected arrival 27 minutes from now, at 7:30."

There was a distant screech of tires, and Paul could see brake lights a few feet ahead. His car braked automatically, and the display urged that he move to the right since the obstruction ahead was in the left lanes. It also told him exactly what the trouble was – a welcome change from "the old days" when a driver often had no idea why traffic was impeded. Then the display told him that he should reroute completely, and instructed him to turn off at the next exit.

The ITS quickly determined a new route: Smooth directions continued to come at each road intersection. Soon Paul returned to the freeway, more than a mile beyond the bottleneck. He arrived at his destination only a few minutes later than his original planned time, and still in plenty of time for the meeting.

4.2 NII Requirements

- Intelligent highway systems with video surveillance cameras and roadway sensors to collect information
- Metropolitan traffic management systems
- Ubiquitous wireless networking for voice, data, and video
- Satellite positioning service
- Personal portable information devices video display capabilities
- Adequate bandwidths for multimedia information throughout the network
- Integration of voice, video, and data information streams in ITS applications
- Speech recognition capabilities
- Service measuring and billing capabilities for both highway and communications infrastructure